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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Toru Watanabe

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EXAMINER

SHAHRIER, SHARIF M

ART UNIT

PAPER NUMBER

2664

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/781,998

Applicant(s)

WATANABE ET AL.

Examiner

Sharif M Shahrier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal (US 2004/0042420), in view of Murakami (US 6,084,889).

Regarding claim 1, Agarwal teaches ATM line interface (Fig. 2B, elmt 1001).

This interface is analogous to the **terminal interface** of claim 1. **Buffer units** comprise of input queues (Fig. 2B elmt 1014) and output queues (Fig. 2B elmt 1005). Agarwal further teaches WAN line interface (Fig. 2B elmt 1009). This interface is analogous to the **network interface** of claim 1.

Agarwal teaches about reformatting received user ATM cells from 53-octet structure to those without HEC byte (para. 64, ln 7-8) in the headers and further performing header and payload compression (para. 65 ln 1-2). The resulting cell or packet is analogous to converting data into a generic data block, called packet type data.

Agarwal further teaches about disassembling the data frame and separating into its individual component cells or packets (para. 70 ln 5-11). The cells are then output to the ATM line interface (**terminal interface**) and passed to the ATM switch for routing (para. 71 ln 15-17).

Agarwal teaches buffer unit for storing cells or packets received from the terminal interface units (Fig. 2B elmt 1005).

Agarwal teaches about queuing of cells; using one queue for each VC (virtual circuit). Cells in these per-VC queues are transmitted on a FIFO basis, i.e. in sequential order to the interface unit (para. 150 ln 6-10).

Destination of cell or packet is characterized by a Virtual Channel (VC) Identifier for the channel to which the packet belongs (para 148 ln 16-17), and are stored in queues according to VC order. The cells are “selected” (by a scheduler) for transmission via the terminal interface on a per-VC basis (para 150 ln 2-3).

Agarwal does not explicitly disclose the network unit synchronizing the cell or packet received from the buffer unit with the line on the network side.

However, Murakami teaches a synchronizing mechanism to match the transmission rate of multiplexed signals to the clock of the ATM network (col 4 line 20-22). This is inherently a component of the network interface unit.

In view of this, having the system of Agarwal, and then given the teaching of Murakami, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Agarwal to incorporate the teachings of Murakami as described above.

The motivation to combine is because synchronization as taught by Murakami will allow accurate cell delineation at the destination.

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Regarding claim 2, the combined method of Agarwal and Murakami discloses all aspects of the claimed invention set forth in the rejection of claim 1.

Agarwal does not explicitly disclose synchronization.

However, Murakami teaches a synchronizing circuit for generating timestamps indicating frequency difference

between the multiplexed signals and the clock of the ATM network (col 4 line 32-40). The timestamp is used to match the rate of the egress cells going into the ATM network.

In view of this, having the system of Agarwal, and then given the teaching of Murakami, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Agarwal to incorporate the teachings of Murakami as described above.

The motivation to combine is because matching transmission speed between the buffer unit and the transmission network allows more efficient transfer and maximizes use of the network bandwidth.

4. Claim 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal and Murakami as applied to claim 1 above, and further in view of Masuda (US 6,314,098).

Regarding claim 3, the combined method of Agarwal and Murakami discloses all aspects of the claimed invention set forth in the rejection of claim 1.

These references does not explicitly disclose the transmission of packets in the buffer sequentially according to the order of priorities.

However, Masuda teaches using an output scheduler to regulate the transmission of packets/cells to the network (col 5 line 61-62) from the buffer. The scheduler can schedule the transmission of packets in the buffer according to a predetermined rule, for example, sequentially in some order of priorities.

In view of this, having the system of Agarwal and Murakami, and then given the teaching of Masuda, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Agarwal and Murakami to incorporate the teachings of Masuda as described above.

The motivation to combine is because it is fairly straightforward to add control circuitry to a buffer system to give it the added flexibility of being able to schedule the transmission of packets in the order of priorities.

Regarding claim 6, the method of combined method of Agarwal and Murakami discloses all aspects of the claimed invention set forth in the rejection of claim 1.

These references do not explicitly disclose the line on the network side being IP.

However, Masuda teaches packets as IPv4 (Internet Protocol ver. 4) packets (col 1 line 65-66) being sent across the network. Thus, the line on the network side can be an IP line.

In view of this, having the system of Agarwal and Murakami, and then given the teaching of Masuda, it would have been obvious to one having ordinary skill in the

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art at the time the invention was made to modify the system of Agarwal and Murakami to incorporate the teachings of Masuda as described above.

The motivation to combine is because IP is a standardized protocol supported by most network layers, and thus can transparently support a plurality of layer-2 technologies.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal and Murakami as applied to claim 1 above, and further in view of Brueckheimer (US 6,731,635).

Regarding claim 4, the combined method of Agarwal and Murakami discloses all aspects of the claimed invention set forth in the rejection of claim 1.

These references do not explicitly disclose multiple buffers.

However, Brueckheimer teaches mini-cell buffers associated with each virtual circuit (VC) connection (Fig.1)(col. 5 line 15-16), where each VC is a point-to-point connection associated with a terminal interface at the block marked INTERFACE (Fig. 1).

In view of this, having the system of Agarwal and Murakami, and then given the teaching of Brueckheimer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Agarwal and Murakami to incorporate the teachings of Brueckheimer as described above.

The motivation to combine is because it is often important to have separate buffers for each VC connection to facilitate per-VC queuing, so that the traffic flow characteristics of each VC can be treated independently.

Regarding claim 5, the method of Agarwal and Murakami discloses all aspects of the claimed invention set forth in the rejection of claim 1.

These references do not explicitly disclose ATM line on the network side.

However, Brueckheimer teaches that the line connecting the INTERFACE block to ATM network (Fig. 1) conveys ATM cells (col3 line 54), and therefore must be an ATM line.

In view of this, having the combined system of Agarwal and Murakami, and then given the teaching of Brueckheimer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Agarwal and Murakami to incorporate the teachings of Brueckheimer as described above.

The motivation to combine is because ATM is a widely used, standardized technology for cell-relay, and can be used for conveying "packet type data".

Conclusions

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharif M Shahrier whose telephone


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number is (703) 305-8707. The examiner can normally be reached on MF:
9:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (703) 305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SMS


RICKY NGO
PRIMARY EXAMINER